COMPLETE LISTING OF THE CLAIMS

The following lists all of the claims that are or were in the above-identified patent application.

1. (Canceled)

2. (Previously Presented) A method of fabricating a MOSFET, comprising:

forming a trench in a surface of a semiconductor, the trench defining a mesa;

forming a first insulating layer along a wall of the trench;

forming a gate in the trench, the gate being insulated from the semiconductor by the insulating layer;

performing a plurality of implantations of dopant of a first conductivity type into the mesa to form a body region, wherein each of the implantations has a different energy, and each of the implantations is performed at a dose that is the same as the dose for another of the implantations; and

implanting dopant of a second conductivity type into the mesa to form a source region.

3. (Original) The method of claim 2, wherein the dose of the implantations is about $7 \cdot 10^{12}$ cm^{-2}.

4. (Original) The method of claim 3, wherein the different energies respectively of the implantations comprise 1 MeV, 700 keV, 525 keV, 375 keV, 225 keV and 125 keV.

5. (Previously Presented) The method of claim 9, wherein a first of the implantations is at a first dose, and a second of the implantations is at a second dose, the second dose differing from the first dose.

6. (Previously Presented) The method of claim 9, wherein respective doses and energies of the implantations are such that the implantations in combination provide a uniform doping for the body region.

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7. (Previously Presented) The method of claim 9, further comprising completing the MOSFET without performing a process to diffuse the dopant of the first conductivity type in the body region, whereby energies of the implantations control a depth of a body-drain junction at an interface between the body region and an underlying portion of the semiconductor.

8. (Previously Presented) The method of claim 2, wherein forming the trench comprises:

forming a hard mask on the semiconductor; and

etching the semiconductor through an opening in the hard mask to form the trench.

9. (Previously Presented) A method of fabricating a MOSFET, comprising:

forming a trench in a surface of a semiconductor, the trench defining a mesa, wherein forming the trench comprises forming a hard mask on the semiconductor, and etching the semiconductor through an opening in the hard mask to form the trench;

forming a first insulating layer along a wall of the trench;

forming a gate in the trench, the gate being insulated from the semiconductor by the insulating layer;

performing a plurality of implantations of dopant of a first conductivity type into the mesa to form a body region, wherein each of the implantations has a different energy, and a maximum implant energy for the implantations causes dopant of the first conductivity type to penetrate through the hard mask into the semiconductor to a depth desired for a junction between the body region and a drain region; and

implanting dopant of a second conductivity type into the mesa to form a source region.

10. (Original) The method of claim 8, wherein forming the gate comprises introducing polysilicon into the trench.

11. (Previously Presented) A method of fabricating a MOSFET, comprising:

forming a trench in a surface of a semiconductor, the trench defining a mesa, wherein forming the trench comprises forming a hard mask on the semiconductor, and etching the semiconductor through an opening in the hard mask to form the trench;

forming a first insulating layer along a wall of the trench;

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forming a gate in the trench, the gate being insulated from the semiconductor by the insulating layer, wherein forming the gate comprises introducing polysilicon into the trench;

performing a plurality of implantations of dopant of a first conductivity type into the mesa to form a body region, wherein each of the implantations has a different energy;

implanting dopant of a second conductivity type into the mesa to form a source region;

with the hard mask in place, oxidizing an exposed surface of the polysilicon to form a second oxide layer at the top of the trench, the second oxide layer extending down into the trench;

removing the hard mask; and

depositing a metal layer on a surface of the second oxide layer and the surface of the mesa.

12. (Previously Presented) The method of claim 2, further comprising:

forming a second insulating layer over the mesa;

etching an opening in the second insulating layer; and

depositing a metal layer into the contact opening to form an electrical contact with the source region.

13. (Previously Presented) The method of claim 10, further comprising:

with the hard mask in place, oxidizing an exposed surface of the polysilicon to form a second oxide layer at the top of the trench, the second oxide layer extending down into the trench;

removing the hard mask; and

depositing a metal layer on a surface of the second oxide layer and the surface of the mesa.

14. (Previously Presented) The method of claim 9, further comprising:

removing the hard mask;

forming a second insulating layer over the mesa;

etching an opening in the second insulating layer; and

depositing a metal layer into the contact opening to form an electrical contact with the source region.

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15. (Previously Presented) The method of claim 9, further comprising:

with the hard mask in place, oxidizing an exposed surface of the polysilicon to form a second oxide layer at the top of the trench, the second oxide layer extending down into the trench;

removing the hard mask; and

depositing a metal layer on a surface of the second oxide layer and the surface of the mesa.

16. (Previously Presented) The method of claim 11, wherein each of the implantations is performed at a dose that is the same as the dose for another of the implantations.

17. (Previously Presented) The method of claim 11, wherein a first of the implantations is at a first dose, and a second of the implantations is at a second dose, the second dose differing from the first dose.

18. (Previously Presented) The method of claim 11, wherein respective doses and energies of the implantations are such that the implantations in combination provide a uniform doping for the body region.

19. (Previously Presented) The method of claim 11, further comprising completing the MOSFET without performing a process to diffuse the dopant of the first conductivity type in the body region, whereby energies of the implantations control a depth of a body-drain junction at an interface between the body region and an underlying portion of the semiconductor.

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